Missouri Department of Natural Resources

ENERGY NOTES

Saving Energy in Your Missouri

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Energy Notes is published by the Missouri Department of Natural Resources Energy Center to provide information to state employees on what can and is being done to reduce energy cost in the work place and in the home.

Energy Efficiency and Office Equipment

The introduction of personal computers (PCs) and other electronic equipment has created an increase in office productivity. Along with this equipment, you will also find computer network servers and specially conditioned rooms to house and secure the servers. All of these items have introduced a steadily increasing electrical load to operate the equipment and an air conditioning load to remove the heat produced by the computer equipment. To control and reduce this increase in energy consumption, computers and other electronic office equipment now come with standard power management features. An easy way to know if your computer or other office equipment has power management features is to look for the ENERGY STAR label, which is a standard on most new office equipment. The following information provides what to look for in office equipment and the best ways to operate it to reduce energy cost at the office or at home.

Monitors: Computer monitors must meet stringent requirements in the On, Sleep and Off modes in order to earn the ENERGY STAR label. In the On mode, the maximum allowed power varies based on the monitor's resolution. A standard 17" monitor uses about 70 watts. In Sleep Mode, computer monitor models must consume four watts or less. In Off mode, computer monitor models must consume two watts or less.

For PCs, setting up the energy management control is just like setting your screen saver. Go to Control Panel/Display/screensaver tab, set the time before the monitor goes into the sleep mode. Even for monitors with a low-power sleep mode, you can save more energy and possibly extend your monitor's life if you manually shut it off completely at night, weekends and during long periods of non-use, such as, your lunch hour or when you know you will be at a meeting for an extended period of time.

Computers: If left inactive, ENERGY STAR qualified computers with power management features activated enter a low-power mode and use 15 watts or less. New chip technologies make power management features more reliable, dependable and user-friendly than just a few years ago. Not only do these features work on network computers, but there are also software programs that allow network administrators to set the power management features of an entire network of computers simultaneously. If network patches and updates are done after hours select a particular night of the week to perform these task and have the employees leave there CPUs on, but turn off the monitors on that day

Printers that have earned the ENERGY STAR label can cut the equipment's electricity use by over 60 percent. ENERGY STAR qualified printers automatically enter a low-power "sleep" mode after a period of inactivity. Many ENERGY STAR machines can print double-sided pages, reducing paper costs. Printers are generally turned on 24 hours a day, so the power management features are important for saving energy.

Copiers, faxes, mailing machines, scanners, laptops and other multifunction devices are also available with the ENERGY STAR label. Spending a large portion of time in low-power mode not only saves energy but helps equipment run cooler and last longer. Businesses that use ENERGY STAR enabled office equipment may realize additional savings on air conditioning and maintenance.

MO National Guard Adopts Energy Efficiency Policy

In order to comply with Presidential Executive Order 13123, the Missouri National Guard (MONG) has developed a policy for both federal and state-owned and operated facilities. The policy requires the use of products and equipment that meet or exceed EPA ENERGY STAR requirements for all project specifications for new construction, repairs and renovations. Examples of technologies include T5 and T8 fluorescent lamps, electronic ballast, compact fluorescents, occupancy sensors and LED exit signs for lighting. Other technologies include timers on water heaters, high efficiency motors and frequency drives, high efficiency HVAC systems, 90 plus efficient furnaces, programmable thermostats and energy management systems.

In the summer of 2002, MONG hired an energy management specialist, Bruce Lehmen. Working out of the Facilities Management office, Bruce works with project managers who oversee new construction and renovation work on MONG facilities throughout the state. He also works with the individual armory managers.

Examples of some of the work performed include the following:

- At the Ike Skelton Training Site in Jefferson City, night setback control was added to the energy management system, seven air handlers were upgraded with variable frequency drives and 1,417 light fixtures were converted from T12 lamps with magnetic ballast to T8 lamps with electronic ballast.
- Other facilities that have received T12 to T8 retrofits include Whiteman AFB and Springfield. Kansas City, Lexington, Cape Girardeau and Trenton are currently in progress. The more efficient lamps and ballasts not only save energy, but there is a reduction in maintenance cost due to failure of the old ballast. The electronic ballast also provides the ability to delamp a fixture without damaging the ballast. This allows for additional energy savings in overlit areas while leaving the fixture in place for possible future changes in space use.
- At various facilities throughout the state, drill hall lighting has been converted from 500 watt HID fixtures to T5 fluorescent fixtures. These fixtures reduce energy and provide a higher color rendition index that is closer to natural light. They provide an instant on, unlike most HID lighting that requires a fixture warm up time, some as much as 15 minutes. Facilities that received this retrofit include Lamar, Joplin and Cape Girardeau. There are plans to retrofit Portageville and Jackson. Newly constructed drill halls will start out with T5s.

Other activities include: installation of occupancy sensors and programmable thermostats at various sites, a plan to add an energy management system to the Kansas City Armory and installation of new HVAC equipment and an energy management system at the Macon Armory.

MO Energy Facts

The MO Division of Personnel 2004 Annual Report indicates that there are 57,596 state employees.

- If 25 percent leave their PC speakers on after hours, it cost the state **$22,497/year**, not including the cost for the additional air conditioning load. If these same individuals leave their speakers on, but never use them, it is costing the state an additional **$7,729/year**.
- If 25 percent leave their 17" CRT monitor on after hours and do not set up the power management function, it will cost the state **$394,302/year**, not including the added air conditioning load. There is also additional cost when computers are not being used during long periods throughout the workday.

Solution: Mandate activation of the power management function on state-owned computers where appropriate.
Assumptions: 6,520 non-work hours per year, $0.06 per kWh

Resources

http://www.energystar.gov/
http://www.energystar.gov/index.cfm?c=ofc_equip.pr_office_equipment

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